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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,833	04/06/2001	Yushi Inoue	900-379	5089

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Arlington, VA 22201-4714

EXAMINER

ESTRADA, MICHELLE

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/826,833

Applicant(s)

INOUE, YUSHI

Examiner

Michelle Estrada

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8, 9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 9 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Zhao (6,100,184) and Wang et al. (6,291,887).

Zhao et al. disclose forming an opening (25/24) by etching process using a resist pattern (22) as a mask in a multi-layered film including a nitride etching stop film (13); having a first fluorinated polyimide organic insulating film (14), a first oxide etching stop film (15) and a second fluorinated polyimide organic insulating film (18) being layered in this order such that the opening penetrates from the second organic insulating film to the first organic insulating film, wherein a second oxide etching stop film (19) is formed between the resist pattern and the second organic insulating film to protect the second organic insulating film from being etched during the formation of the opening (Col. 7, lines 1-5); wherein the first organic insulating film has a dielectric constant of about 3 or lower (Col. 6, lines 15-18); wherein the second etching stop film is made from the same material as the first etching stop film (Col. 6, lines 65-66); wherein the first etching stop film is a film that functions as an etching stopper to the first organic insulating film and has an insulating function; wherein the first etching stop film has a selectivity ratio with respect to the second organic insulating film of 5 or higher; wherein the second etching

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stop film is formed of such a material in such a film thickness that the second organic insulating film is protected from being etched when an opening is formed through the second organic insulating film to the first organic insulating film; wherein another etching stop film (13) which is functioned as a diffusion barrier for metallic elements or impurities is provided under the multi-layered film (Col. 5, lines 62-67); wherein the additional etching stop film (19) is of a different material than the etching stop film under the first organic insulating film so as to improve efficiency of producing the semiconductor device (Col. 6, lines 61-67).

Zhao et al. do not disclose wherein the nitride etching stop film and the first and second oxide etching stop films are provided as continuous layers with no apertures defined therein when the resist pattern is formed over the multi-layered film; and forming an opening by an etching process using the resist pattern as a mask during at least a part of forming the opening, wherein the opening penetrates at least the first and second organic insulating films and is of substantially the same size in both the first and second organic insulating films.

Wang et al. disclose wherein the nitride etching stop film (12) and the first and second etching stop films (16/20) are provided as continuous layers with no apertures defined therein when the resist pattern (22) is formed over the multi-layered film; and forming an opening by an etching process using the resist pattern as a mask during at least a part of forming the opening, wherein the opening penetrates at least the first and second organic insulating films and is of substantially the same size in both the first and second organic insulating films (See fig. 7 and Col. 6, lines 20-35); wherein another

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resist (24) is used as a mask in enlarging the opening in the second insulating film but not the first organic insulating film.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Zhao et al. and Wang et al. to enable formation of the opening.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is (703) 308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
George Fourson  
Primary Examiner  
Art Unit 2823

  
MEstrada  
September 11, 2003